DOCUMENT RESUME

ED 200 596 SP 017 973

AUTHOR Stallings, Jane A.
TITLE Changing Teacher Behavior: A Challenge for the 1980's.
PUB DATE Apr 81
NOTE 39p.; Paper presented at the Annual Meeting of the American Educational Research Association (Los Angeles, CA, April, 1981).

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Academic Achievement; Behavior Change; *Classroom Techniques; *Faculty Development; Inservice Teacher Education; *Pacing; *Positive Reinforcement; Reading Instruction; Secondary Education; Student Needs; *Student Teacher Relationship; *Teacher Behavior; Teacher Response; Teacher Workshops

ABSTRACT

A training program for changing teachers' classroom behaviors was developed after observations indicated that students gained in reading skills when teachers spent more time instructing, discussing homework, and providing supportive feedback. During workshop sessions teachers were encouraged to: (1) decrease time taken to make assignments and increase instruction time; (2) ask short questions and give immediate supportive feedback to responses; (3) distribute questions among the students, choosing questions each student could most likely answer; (4) give short quizzes designed to allow the students a high rate of success; (5) have the students in the low reading groups read aloud; (6) encourage more reading aloud, discussion, and review, and ask for fewer written assignments and less silent reading; (7) minimize intrusions from outside the class; and (8) keep the number of choices students may make at a minimum. A posttest of student reading achievement in classes where the teacher had attended the workshops showed that the treatment group had higher grade gains than the control group. (JD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED200596

CHANGING TEACHER BEHAVIOR:

A CHALLENGE FOR THE 1980'S

Jane A. Stallings, Ph.D.

Presented to:

American Educational Research Association
Los Angeles, California
April 1981

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Jane Stallings

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

SP017913

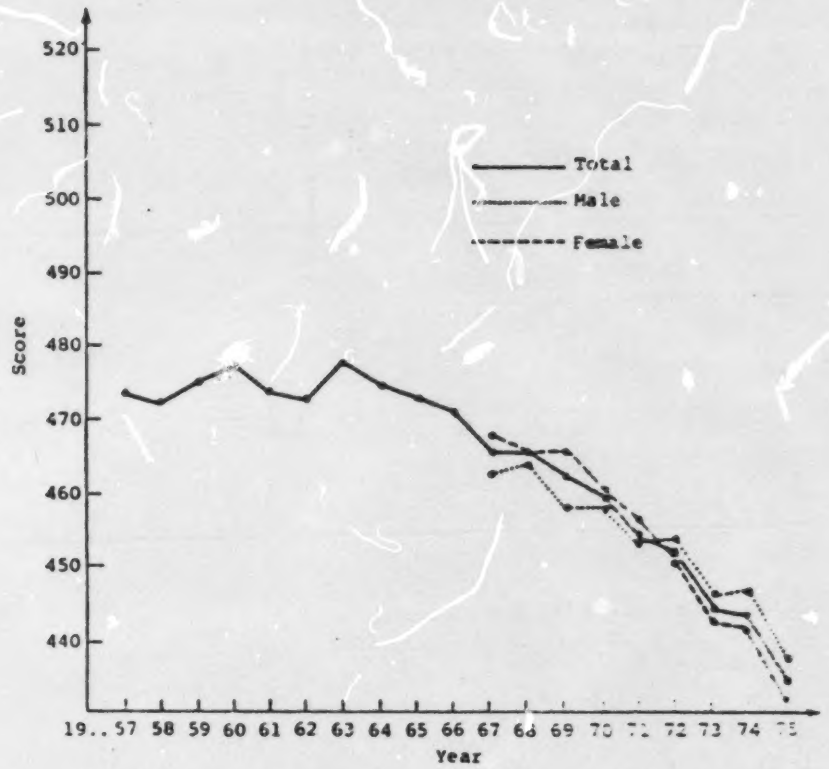
CHANGING TEACHER BEHAVIOR:
A CHALLENGE FOR THE 1980'S

Never before in the history of education have we asked so many teachers to teach in so many situations for which they were not trained. Many factors contribute to this situation. A primary factor is the declining student enrollment. Fewer students mean that fewer teachers are needed. Consequently, many schools across the nation are being closed and student bodies and faculties are merged. Given the practice of keeping teachers with the most tenure, the schools remaining in the districts have faculties that were, for the most part, trained in the 1960's. During that period of unrest, educators were responding to student and public discontent with many innovative techniques, e.g., open classrooms, street schools, individual contracts. In an effort to entice students to stay in school, more emphasis was placed upon social issues, civil rights and self awareness than upon academic skills. The populace was not yet aware of the declining test scores or the increasing number of failing children who were passed along from grade to grade and on into high schools.

The problem of illiterate high school students was brought painfully to public attention in the early 1970's when several malpractice suits were filed against school systems by parents of graduated students who could not fill out job applications or pass reading exams given by the United States Army (Saretsky, 1973).*

---

*The first of these suits was in 1972 when "Peter Doe" claimed that his fifth grade reading level at graduation was below the competency necessary for holding a job.



Source: Annegret Harnischfeger, and David E. Wiley, *Achievement Test Score Decline: Do We Need to Worry?* (Chicago: ML Group for Policy Studies in Education, CEMREL, Inc., 1975).

Figure 1. Mean Verbal Scholastic Aptitude Test scores for college-bound seniors, 1957-1975.

The plummeting test scores were graphically reported in 1975 by Harnischfeger and Wiley (See Figure 1). This drop since 1965 stimulated many state legislatures and school boards to draw up lists of educational standards that students in high schools should meet at various stages of their education. The movement has spread so that in 1979 all but four states have regulatory standards and 20 have a competency test for graduation.

To the dismay of many school districts and state legislatures, many more students than expected failed the competency exams. In 1977, Florida's Department of Education gave the first state-wide test and made graduation conditional on passing: 91% of the eleventh graders passed the English test but only 64% passed the mathematics test. In California, where school districts prepared their own tests, students failed at an even greater rate.

Testing students to assess deficiency in basic skills is useful only if strong remediation measures are taken. In California, the Hart Bill legislation mandates each school district compose its own competency exam so that by 1981 no student will graduate from California schools without passing that exam. The law also mandates that all students failing the test must be provided with school programs that will make it possible for them to pass the test. The failing student and parent are required to meet with a representative from the school and all participants must take responsibility for the student's progress.

The section of the Hart Bill requiring secondary schools to provide remediation has had a great impact on school planning. To meet the requirement, remedial classes in reading are being offered whether or not credentialed reading teachers are available. Teachers have been reallocated to teach basic reading regardless of their backgrounds.

Other factors contributing to the rapid change in school population and requirement during the 1970's are state and federal legislation regarding

desegregation and mainstreaming handicapped children. Thus, teachers who were trained in the 1960's are presently teaching in situations very different from those for which they were trained. Extensive and intensive staff development programs are needed to help teachers meet the needs of the students in the classrooms of today.

Federal and State Staff Development Programs

Several massive staff development programs have been funded by the federal government. Notable among these is Teacher Corps. This program provides funds for local education agencies (LEA) and Institutes of Higher Education (IHE) to develop and deliver inservice and preservice teacher training. At present, 132 Teacher Corps projects are being funded at a cost of $29,700,000.[1]

Another national program funds Teacher Centers. This year's budget of 13 million dollars was used to fund 99 projects that have supported 140 centers.[2] Teacher Centers provide an opportunity for teachers to learn to use new materials and become acquainted with new techniques. In addition to this program, funds for staff development are also found in federal programs such as migrant education, bilingual education, Title I, and Public Law 94-142 which stipulates the mainstreaming of handicapped children. In addition to federal funds, state departments of education and local school districts also allocate funds for staff development.

The problem in staff development is not having too few dollars. The problem is delivering a well focused, comprehensive program that will serve the needs of children and teachers. In a study of 20 Teacher Corps sites it appears that there is little overlap among the categorical programs. Seldom does Teacher Corps personnel coordinate with the personnel of Teacher Centers or other categorical aid programs. Teachers in schools report that

the activities of several federal programs in a school seem to fractionate the education of children. If there are several staff development programs in a school they often compete for teachers' limited time. If each categorical program has a director and their own budget, they are likely to think in terms of the program rather than in terms of children and teachers. Isolated pull-out programs seem to work to the disadvantage of children. In schools where one person coordinates the several programs and plans are made as a group for the good of the children needing services, such pitfalls are avoided.

Choosing a Staff Development Program

Often, principals in a district are given a budget for staff development. This allows a given number of days for teacher release time and dollars to attend conferences or hire consultants to come to the school. During the past four years of studying schools we find that principals use these funds in very different ways. Some principals tell their staff that each person can attend, for example, two conferences. They then provide a list of conferences that are acceptable. This procedure does not provide for continuity or follow-up to see how the teachers have benefited from the conference. Teachers seldom shared what they had learned with their colleagues.

Some of the principals used their funds to establish a school-wide program. For example, all teachers would attend the Assertive Discipline Program [3] offered by Lee Cantor or Fred Jones would train a group of teachers to use his classroom management techniques in his program entitled Classroom Management Training Program.[4] These teachers would then teach the entire staff. Other principals have been successful in establishing Madeline Hunter's program for classroom management.[5] One entire high school district near

our home base has been trained to use the techniques offered by Sam Kerman to provide Equal Opportunity in the Classroom.[6]

Staff development makes the most difference in teacher behavior change and student achievement when the program is school-wide. One school in which we work has every teacher teach at least five key words a week. These words must be central to the course of study. The meaning and the spelling is taught. Misspellings are handled the same way in every class. Over a two-year period, this school significantly increased their spelling and vocabulary scores on a standardized test.

A Model for Staff Development

Every staff development model includes a curriculum and a delivery system. Curriculum means the content and delivery means where, when, how, and number of participants. A good content with poor delivery, or vice versa, is not likely to be effective in bringing about change in teacher behavior.

The goal of the Teaching and Learning Institute's training program is to help teachers learn to manage their classroom time effectively. The curriculum is based upon research findings. The delivery system is personalized instruction and interactive small group problem solving.

The content of the program is derived from research funded by the National Institute of Education. The delivery system was also developed with funds from that agency.*

The model was developed during a multi-phase study in secondary schools. In Phase I, we observed 46 secondary reading classrooms selected from six Northern California school districts to examine the relationship between what teachers do and what students gain in reading. The results of this study provided some very specific guidelines for efficient instructional strategies

---

*The early research was carried out at SRI International in Menlo Park, CA.

to use with secondary remedial reading students. In Phase II, we translated these findings into a series of workshops and provided the workshops for 47 teachers in the districts where we conducted Phase I of the study plus one neighboring district. One-half of the teachers were trained and the other half were in a control group that did not receive training until the end of the experiment. The treatment teachers changed behaviors in recommended ways and their students made more reading gain than the students in the control group. The teachers were enthusiastic about the program and recommended the training to other teachers in their districts. To accommodate the requests which were beyond the scope of our staff, we developed a Phase III program in which we monitored our trained teachers as they trained other teachers in their districts. This three-phase effort left the districts with a cadre of teacher trainers to carry on the process of teaching secondary teachers effective instructional methods of helping students gain basic reading skills.

In each year of the study, we found that students made more gain in classrooms where the teachers spent more time instructing, discussing homework, providing considerable supportive feedback, and having students read aloud in small groups. In this environment, the teacher stayed involved with the students all of the class period. They were well-organized and made the most of the time available.

Students made less gain in classrooms where 40-50% of the time was allocated to written assignments, another 30-40% was allocated to silent reading, and where teachers graded papers or made lesson plans during class time. This structure does not provide the supportive interaction that remedial students need to make progress. Also, less gain was made by students in classrooms where there were more interactions of a social or disruptive nature.

To optimize student gain, all of these findings suggest that teachers "get the show on the road" when the bell rings and stay supportively involved during the total period.

Variables found to be significantly positively related ($p < .05$) to reading gain during Phases I and II of the study are listed below:

Positively Related	Negatively Related
Discussing or reviewing seatwork or homework.	Teachers doing organization or management tasks during class time.
Instructing new work.	Too much time allocated to written assignment.
Drill and practice.	Too much time allocated to silent reading.
Students reading aloud.	Too much time allocated to working with one student.
Focusing instruction on a small group or the total group.	Intrusions (loudspeakers, tardy students, etc.).
Praise and support of success.	Social interactions.
Positive corrective feedback for incorrect responses (rephrase question or probe).	Misbehavior or negative interactions.
Short quizzes.	

The goal of Phase II was to change teacher behavior in specific ways. It was a quasi-experimental study wherein a treatment group and a control group of teachers were observed in the fall winter, and spring. Only the treatment teachers received the five workshops that were based on the research findings of Phase I. (See attachment for workshop description.)

The workshop sessions were conducted one week apart, usually from 3:30 to 6:00 p.m. To maximize teacher interactions and full participation, the groups were limited to five or six teachers. Although we have workshop materials, the cornerstone of the workshops is the process where teachers are encouraged to try new ideas and are supported in their efforts. Each teacher operates in a unique situation. Class size, room assignment, and school policies affect the way recommendations are carried out. The trainer must listen and respond to teachers' questions and ideas to help modify the

recommendations to accommodate each teacher's situation. All recommendations must be examined and adjusted to the context of the teachers, students, classrooms and schools.

Analysis of Teacher Change:

Once the workshops were delivered and the pretest and posttest data were collected the $100,000 question was: Did the workshops make a difference in how the teachers performed in their classrooms?

Mean frequencies for each variable used on the profiles were computed for the control and treatment groups. A report of how each group performed on critical variables is displayed on Tables 1, 2, 3 and 4. Each group is compared with a grand mean. The grand mean was derived from 43 classrooms observed in spring in Phase I and 44* classrooms in spring, Phase II. This mean reflects the frequency or percentage of the behaviors occurring in classrooms that were correlated with student gain. Our recommendation to teachers in fall, Phase II was to increase or decrease a particular behavior so that it was above or below the spring, Phase I mean depending on whether the variable was positively or negatively correlated with gain.+ In some cases the teachers were already performing the activity in an effective manner so the recommendation was to continue the activity as they were doing. If the treatment or control group of teachers was performing above or below the mean as recommended on a variable, they were given one point. (This is shown on Tables 1, 2, 3 and 4 in terms of a plus.) In this manner an implementation score was developed for each group. Five Minute Interaction variables (F) are reported in terms of frequency of occurrence during 300 interactions

*Two classrooms did not have a complete data set and were dropped from the analysis.

+Recommendations were based upon spring, Phase I but evaluation was based upon the grand mean.

recorded per class period. Snapshot variables (S) are reported in terms of percentage of time observed during 5 snapshots per class period. This is a descriptive analysis wherein trends and meaningful differences are examined, rather than a statistical analysis.

Interactive Instruction

As previously stated, we encouraged teachers to decrease time taken to make assignments and to increase instruction time. This instruction time variable is a composite that includes instruction using any materials as well as discussions and drill and practice activities. This total instruction time (S6, 7, and 8) was observed to have increased slightly for the treatment group from 13% to 15%. The control group went from 11% in the fall to 8% in the spring. The instruction interactions (F45) stayed above the mean for the treatment group but steadily declined for the control group (see Table 1).

An instructional method includes the presentation of new material and what the teacher does after giving instruction or presenting the new material. This procedure varies. We encouraged asking short direct questions and giving immediate supportive feedback to the student's response. Students who have a long history of failure need consistent support and many opportunities to experience success. The number of questions treatment teachers ask about reading (F17) and the students' response rate (F25÷F17) decreased slightly toward spring but remained above the mean. Out of an average of 31 questions teachers asked per period in the spring, students responded an average of 29 times. We encouraged the teachers to distribute the questions among the students, choosing questions each student could most likely answer. We discouraged calling on volunteers since the same students are likely to always respond and get the feedback. Data from Table 1 (F136) indicates that teachers in the treatment group called on different students 23 times

in the spring (a little less than in the fall). However, out of the 31 questions asked, a different student was asked 23 times. Note that all of these variables are above the grand mean in the treatment group and below the mean in the control group.

When a teacher continues to question one student, it may indicate the student gave an incorrect response and the teacher was asking probing questions (F110). This is a supportive kind of feedback that is low in frequency but was related to student gain in Phase I. It more than doubled in the treatment group while decreasing in the control group. The message from the teacher to the student in this variable is: The answer isn't right but I think you (the student) can get it, if I (the teacher) ask the question differently. The main idea is to assist students to respond correctly so that positive supportive praise or acknowledgement can be given. There was a positive correlation between praise and support with achievement gain and attendance rate in Phase I. The treatment teachers did increase the frequency of offering praise and acknowledgement (F71) and corrective feedback (F76, F110), while the control teachers declined on these variables.

In order to give students a daily opportunity to succeed we suggested giving short quizzes (5-10 items) that could be scored easily. The quizzes should be designed to allow the students to succeed at a rate of 80-100%. Students who have seldom received 100% need chances to succeed on this level. Success becomes a motivating factor for students who have stopped trying. Although there was a considerable increase in the number of quizzes (S10) being given in both the treatment and control groups from fall to spring, the number of quizzes observed in the treatment group in the spring was still fewer than was the grand mean.

In addition to the instruction of how to teach new material through drill and practice and positive support, we suggested that the teachers

Table 1

INTERACTIVE INSTRUCTION

		Spring Grand Mean	More or Less*	Treatment Teachers (N=25)				Control Teachers (N=19)			
				Treatment Group Implementation Score	Fall $\bar{X}$	Winter $\bar{X}$	Spring $\bar{X}$	Control Group Implementation Score	Fall $\bar{X}$	Winter $\bar{X}$	Spring $\bar{X}$
S6, 7,8	Instruction activities	12%	More	+	13%	15%	15%	0	11%	9%	8%
F45	Instruction interactions	54.3	More	+	66.3	44.3	58.3	0	53.6	50.0	44.4
F17	Teacher questions: reading	31.1	More	+	37.2	33.0	31.7	0	40.2	33.9	25.8
F25	Student response: reading	28.8	More	+	33.3	29.0	29.1	0	34.8	29.2	25.3
F71	Praise/support reading or task	12.9	More	+	12.6	13.8	15.2	0	13.4	12.4	11.6
F76	Corrective feedback: reading	12.7	More	+	10.4	10.8	13.0	0	16.6	12.1	12.4
F110	Probing questions	.41	More	+	1.3	2.2	3.0	+	2.8	1.5	2.0
F136	Teacher interacts: different student	21.9	More	+	26.0	20.9	23.1	0	25.8	21.0	21.9
S10	Tests or quizzes	1.2%	More	0	.2%	1.8%	1.4%	+	.4%	.8%	1.7%
F43	Students reading aloud	17.3	More	0	10.7	13.8	13.8	0	14.4	13.7	16.1
S4	Reading aloud activity	5.8	More	0	3.9%	1.9%	2.3%	0	3.4%	5.1%	5.7%
F94	All interactions: reading	202.1	More	+	218.7	208.0	199.0	0	244.1	209.0	181.7
				Total + 9				Total + 2			

S = Snapshot variables on percentage of time observed.
F = Five minute interaction variables - frequency out of 300 interactions.

*More = treatment teachers were directed to do more of these activities than the grand mean.
Less = treatment teachers were directed to do less of these activities than the grand mean.

have the students in the low reading groups read aloud. Hearing as well as seeing the words is helpful to these students. Many teachers were reluctant to try this since they felt the students would be embarrassed. One teacher who had been teaching 29 years tried grouping and having students read aloud. He reported that he and the students enjoyed the process--"it seemed to break the monotony." Table 1 indicates that although the treatment did increase the number of reading aloud (F43) interactions, they were still lower than the grand mean. The percent of time (S4) went down slightly. This was a disappointment but we conclude it is difficult to get teachers to try something they have opinions against and haven't experienced previously.

The reading interactions comprise two-thirds of the 300 interactions recorded for the treatment groups (F94). We would have preferred to see this increase rather than decrease, but it is higher for treatment teachers than the control group although the control group started higher in the fall. One explanation for the lower number of reading interactions in the treatment groups may be that the number of interactions centering on other subject areas--current events, social studies, science--increased in the spring. These interactions are coded as task oriented when subject matter other than reading is discussed.

On eight of the twelve interactive instruction variables the treatment group is above the grand mean and the control group. Although the reading aloud variable was not increased to the degree we might hope, we conclude this part of the treatment was effective.

Non-Interactive Instruction

In Phase 1, the data suggested that the more gain was achieved in classrooms where there was more interactive instruction and where several activities

occurred during one period. The no-gain classrooms in Phase I tended to have a high rate of written assignments and silent reading and not much interaction with the students. Thus we recommended a reasonable balance between these activities: encouraging more reading aloud, more discussion and reviewing, less silent reading, and fewer written assignments. The snapshot variables on Table 2 indicate that both groups were above the grand mean on silent reading (S3) in the spring. Time spent on written assignments (S9) decreased for the treatment group and stayed about the same for the control group.

In classrooms where there were high rates of silent reading and written assignments we found there were also high rates of teachers doing tasks like grading papers or making lesson plans during class. To change this pattern we encouraged teachers (especially those with students in the low or medium groups) to stay involved with the students and cautioned them not to grade papers, prepare lessons, etc. during class. Results indicate that on variables describing situations where teachers are not involved with students (S2 and F122), the treatment teachers increased but were below the grand mean. The control teachers increased this behavior to considerably above the mean. By springtime, control teachers were not involved with students 29% of the time when the snapshots were recorded. The treatment group was lower than the grand mean and the control group on three of the four non-interactive instruction variables.

Off-Task Activities

In other research on teaching (Evertson, Anderson and Brophy, 1978; Stallings and Kaskowitz, 1974; and Good, 1978), the variable most often found to be related to achievement gain is the time students spend on task. In secondary classrooms where the reading period is likely to be only 45 minutes, it is of utmost importance to reduce the off-task behavior

Table 2

NON-INTERACTIVE INSTRUCTION

		Spring Grand Mean	More or Less *	Treatment Teachers (N=25)				Control Teachers (N=19)			
				Treatment Group Implementation Score	Fall $\bar{X}$	Winter $\bar{X}$	Spring $\bar{X}$	Control Group Implementation Score	Fall $\bar{X}$	Winter $\bar{X}$	Spring $\bar{X}$
S3	Silent reading	13.8%	Less	0	15%	13%	16%	0	11%	12%	15%
S9	Written assignments	20.9%	Less	+	24%	24%	18%	0	24%	26%	23%
F122	Teacher without students	41.0	Less	+	17	25	36	0	24	36	47
S2	Teacher: manager--no students	27.8	Less	+	21%	24%	22%	0	21%	26%	29%
			Total +	3				Total +	0		

S = Snapshot variables on percentage of time observed.
F = Five minute interaction variables--frequency out of 300 interactions.
* More = treatment teachers were directed to do more of these activities than the grand mean.
Less = treatment teachers were directed to do less of these activities than the grand mean.

and increase the on-task behavior. The most striking difference we found in Phase I between the no-gain classrooms and the gain classrooms was in the amount of time teachers spent talking about behavior, the number of social comments, and students or teachers not involved in the process of reading. Thus, in the workshops we focused a considerable effort on techniques for reducing off-task behavior and increasing task behavior. Table 3 suggests the workshops had an effect. In variable F56, social comments, the treatment group dropped in the winter and increased slightly in the spring, but overall was lower than the grand mean. The control group started slightly lower in the fall and increased in winter and increased dramatically in the spring. Given teenagers and springtime, the increase is not surprising, but the treatment group teachers were able to hold the socializing down.

The treatment teachers' comments on students' behaviors (F96) were reduced by one-third. In the fall the treatment teachers made an average of 9.6 statements about behavior out of 300 statements during the class period and by the spring this had dropped to 5.9. The control teachers started at 6.7 and increased slightly to 7.5.

Students' non-involvement in tasks (S-12, S-13) increased in the treatment group, but remained below the grand mean of 11%. The control group increased from 5% to nearly 14% in the spring. This means that when the spring observations were made some student or students were either chatting or not involved in any activity (i.e., staring out of the window) 14% of the time.

Other events that take teachers and students off task are intrusions from outside the class. There are many reasons why people enter the classroom and stop the activities: collecting absence data, taking students from class for meetings, school announcements, class photos, purchasing tickets, etc. Phase I data revealed a negative relationship between outside intruders

Table 3

OFF-TASK ACTIVITIES

		Spring Grand Mean	More or Less*	Treatment Teachers (N=25)				Control Teachers (N=19)			
				Treatment Group Implementation Score	Fall $\bar{X}$	Winter $\bar{X}$	Spring $\bar{X}$	Control Group Implementation Score	Fall $\bar{X}$	Winter $\bar{X}$	Spring $\bar{X}$
F56	Social comments	5.3	Less	+	2.2	1.9	2.9	0	1.5	2.6	8.1
F96	Interactions: behavior	8.4	Less	+	9.6	5.7	5.9	+	6.7	7.6	7.5
S12,13	Students uninvolved in tasks	11.4%	Less	+	4.5%	5.3%	9.1%	0	5.1%	4.7%	13.9%
F135	Class intrusions	2.6	Less	+	2.7	3.1	2.1	0	2.6	2.4	3.3
				Total + 4				Total + 1			

S = Snapshot variables on percentage of time observed.
F = Five minute interaction variables--frequency out of 300 interactions.
*More = treatment teachers were directed to do more of these activities than the grand mean.
Less = treatment teachers were directed to do less of these activities than the grand mean.

and student gain. Limiting the number of intrusions into the teacher's instructional time is a school level issue which teachers cannot control. While we made teachers aware of the finding regarding intrusions, there was little they could do about it. However, the rate of intrusions in treatment classes diminished slightly in the spring and increased for the control group (F135).

Organization and Grouping

The time spent in organizing and managing the classroom is time spent off the task of teaching reading. However, it is of utmost importance that the classroom is well organized; otherwise it will not function smoothly.

In our Phase I study, we found that in all three gains groups the teacher spent less time making assignments and more time instructing the students than did the teachers of no-gain classes. Thus, we encouraged the treatment teachers in Phase II to be efficient when making assignments: e.g., write assignments on the chalkboard before the class arrives, or have the class assignments for the week on a ditto sheet in student folders. By all means let the students know what to do when they finish an assignment. The message was, have a known agenda from the moment a student walks in the room until the period ends.

The observation data indicate that the percentage of time spent making assignments (S5) went down slightly for the treatment group and stayed the same for the control group (see Table 4). The number of interactions about assignments and organization (F120) increased somewhat for the treatment group but remained below the grand mean. The control group increased by 20 interactions from fall to spring. The number of student comments about assignments (F108) decreased for the treatment group and increased for the control group.

Data shown in Table 4 indicate that a high percentage of observed time was spent by teacher and students in management activities, i.e., passing books, collecting papers, grading papers (S2 and S15). These activities decreased for the treatment group and increased for the control group in the spring.

How the teacher organizes the classroom to keep students on task will make a difference in how well the on-task objective is accomplished. Research findings in Phase I indicate that teachers who move around the classroom monitoring students' work had more students gain than did teachers who allowed students to move around the room coming to the teacher for help. We encouraged our teachers to do the moving around. The treatment teachers held this behavior constant and were above the grand mean (F91) while the control teachers decreased this behavior by 50%.

Many of the classrooms had children with different reading abilities, so we encouraged the teachers to group the students by ability. Given the findings mentioned in Section I that working with one student at a time is an inefficient way to distribute the teacher's time, we recommended that teachers cut down the amount of time spent with one student and increase the time they spent working with a group. Students learn from each other in groups because the instruction time with the teacher is increased. Rather than 2 minutes of individual time they may have 12 minutes of group time with the teacher.

The data on Table 4 indicate that speaking to groups (F48) increased slightly and working with individuals (F5) decreased in the treatment group: there were an average of 20 fewer interactions per period with individuals in the spring than in the fall. There still were many more interactions with one person than there were with groups. Teachers working with groups (S120) increased from fall to spring in the treatment group. When working

with a group teachers are most likely to ask one student at a time to answer a question so that interactions with individuals will be recorded even if the individual is within a small group. This may help explain the much higher rate of speaking to individuals (S119) rather than to groups.

Data for spring in the treatment group shows that 4% more time was spent with groups (S120). Less time was spent with the total class (S121) but it still was above the grand mean. Counter to our suggestion, slightly more time was spent with individual students (S119). The amount of time control teachers spent with one student remained approximately the same throughout the year. The control group started in the fall by spending 7% more time with groups (S120) than did the treatment group, and this decreased somewhat in the spring. Learning to work with groups is a difficult organizational challenge for most high school teachers. Secondary teachers have not been trained to orchestrate and plan for several groups to function at the same time. Those teachers who formerly had been elementary teachers found this recommendation easier to carry out than did teachers trained only to teach in secondary classrooms. More teachers in the control group had been trained as elementary teachers, explaining in part their higher fall scores for grouping.

To encourage teachers to be in strict control of their classrooms, we suggested that they keep the number of choices students make at a minimum. Much time can be wasted while students decide whether they want to do this or that. We found students were rarely allowed to make choices in either group--fall or spring (F105). The grand mean was only .11. Thus, we think this variable has little impact on student gain and is a small part of a larger picture.

For the most part, the treatment teachers changed behavior in the directions recommended in midwinter. A late spring observation indicated that

Table 4

ORGANIZATION AND GROUPING

		Grand Mean	More or Less*	Treatment Teachers (N=25)				Control Teachers (N=19)			
				Treatment Group Implementation Score	Fall $\bar{X}$	Winter $\bar{X}$	Spring $\bar{X}$	Control Group Implementation	Fall $\bar{X}$	Winter $\bar{X}$	Spring $\bar{X}$
S5	Making assignments	4.5%	Less	+	5%	5%	3%	0	5%	4%	5%
F120	Interactions: assignments and organization	61.9	Less	+	50.7	55.0	58.1	0	57.7	78.9	78.5
F108	Student comments: assignments	8.7	Less	+	7.2	6.3	4.7	+	6.0	9.7	8.5
S2,15	Total class management	30.1%	Less	+	26%	26%	24%	0	24%	31%	31%
F91	Teacher movement	15.8	More	+	20.1	22.7	19.6	0	25.9	15.1	12.5
F48	Teacher instructs group	4.4	More	+	5.0	7.3	7.2	0	1.7	4.8	2.4
F5	Teacher individual student	78.7	Less	+	91.4	82.6	70.8	+	89.0	77.0	73.3
S119	Teacher with individual	25.0%	Less	0	23%	-	26%	+	24%	-	23%
S120	Teacher with group	16.6%	More	+	13%	-	17%	0	20%	-	16%
S121	Teacher with total class	24%	More	+	30%	-	26%	0	26%	-	22%
F105	Offer student choices	.11	Less	0	.17	.05	.16	+	.05	.12	.14
				Total + 9				Total + 4			

S = Snapshot variables on percentage of time observed.
F = Five minute interaction variables--frequency out of 300 interactions.
*More = treatment teachers were directed to do more of these activities than the grand mean.
Less = treatment teachers were directed to do less of these activities than the grand mean.

treatment teachers maintained most of their behavior changes, whereas control teachers' classes became more lax and less task-oriented.

Student Outcomes

The first and most important question to ask of the student achievement data is: Did the treatment group's students gain more than the control group's students? To answer this question we used those classrooms that had district reading scores available from Spring 1977 and Spring 1978. This provided a sample of 15 treatment classrooms and 14 control classrooms. The attrition from fall to spring in the number of classrooms with sufficient student test data was quite high. Although we started the study with comparable groups we found that the treatment group was considerably lower on the pretest than was the control group (see Table 5).

Table 5
A COMPARISON OF THE READING TEST SCORES FOR THE TREATMENT AND CONTROL GROUPS OF TEACHERS

	Pretest			Posttest			Gain	
	$\bar{X}$	S.D.	Range	$\bar{X}$	S.D.	Range	$\bar{X}$	Range
Treatment (N=15)								
Standard Scores	456.04	42.01	399.7 to 538.6	510.89	41.65	433.4 to 610.0	50.45	17 to 112
Grade Equivalent	(5.7)		(4.1 to 8.3)	(7.5)		(5.1 to 10.7)	(1.8)	(.7 to 2.2)
Control (N=14)								
Standard Scores	499.79	34.75	461.3 to 590.0	537.41	38.67	476.1 to 624.8	37.90	11 to 75
Grade Equivalent	(7.2)		(5.8 to 10.2)	(8.4)		(6.3 to 11.1)	(1.2)	(.3 to 2.2)

The average for the treatment group was the grade equivalent of 5.7, and the lowest classroom score was 4.1. This is contrasted by the control group's average pretest score of 7.2 grade equivalent and the lowest class score was 5.8. The tests given in each class were selected for appropriate reading levels so that there would not be a topping out effect on posttest scores. Data on Table 5 indicate that the treatment group averaged a 1.8 grade equivalent gain. This is impressive, given they had lower performing

students with whom to work. The difference in gain between the treatment and control group is significantly different ($p < .08$). The reader is reminded that it is difficult to obtain significant differences with small samples. Nevertheless, the educational significance here is six months more gain by the treatment group than by the control group. It is very difficult to make such achievement in secondary classrooms where students have a long history of failure.

A procedure that has emerged from the work of Hedges, Gage, and Olkin (1978) suggests that it is reasonable to consider the size of effects of treatment upon a group of students. Several recent reports of experiments report their effects in this manner (Glass and Smith, 1979). An analysis of variance of the two groups provided the data shown on Table 6. The effect size is 1/2 standard deviation. This is considered a moderate effect on student scores attributable to the training of the treatment group. When the scores of two teachers in the treatment group who had irregular attendance and did not perform the instructional processes to the degree expected were eliminated from the data, this effect size was increased to .70 standard deviation.

Table 6
MEANS AND STANDARD DEVIATIONS OF GAIN ON CTBS SCORES

Group	$\bar{X}$	S.D.
Control (N = 14)	37.90	24.15
Treatment (N = 15)	50.45	31.94

Effect Size = $\frac{50.45 - 37.90}{24.15}$ = .52 S.D. units

Training Teachers as Trainers

The goal of Phase III was to change teacher behavior in specified ways by using teachers who had been trained by our staff to provide the training

for other teachers. To do this, we assisted six teachers trained in Phase II to train other teachers to use the instructional processes found to be effective. Phase III was a quasi-experimental design where change of teacher behavior in teacher-led groups was compared with the change in teacher behavior in groups led by the SRI project leader. The sites included Downey, Lompoc, Monterey, Milpitas, and Fresno, all in California. Change in teacher-led groups was similar to that of groups led by the project leader. This three-phase effort left the district with a cadre of teacher trainers to carry on the process of instructing secondary teachers in effective methods of helping students gain basic reading skills.

Training Interns

The goal of Phase IV was to train 24 teachers from a local school district to train an apprentice who could return to his district and function as a trainer of observers and leaders of workshops. During this phase, an intern came to Menlo Park from Cincinnati, Ohio, and during a two-week period observed and participated in the series of workshops. These were staggered so that he could participate in all of the workshops.

Upon his return to Cincinnati the apprentice successfully carried out the training program in school year 1979 and 1980 and he is continuing the training program in 1980-81. He has expanded the program so that he is presently training teachers and supervisors in elementary, middle and high schools.

Phase V is an apprentice training program funded through the National Institute of Education. Four apprentices were trained in November, 1980. The sponsoring agencies were the West Virginia Department of Education, the Federal Teachers' Center in the San Fernando Valley, The University of North Carolina's Department of Education and Northern California Juvenile Court

Schools through the California State Department of Education. These four apprentices started building their pyramid for training teachers who can train other teachers in January, 1981. The TALI staff will evaluate the change in teachers' behavior.

Evaluating Staff Development

In order to effectively use staff development dollars it is necessary to establish goals and priorities. Then, to determine whether or not the staff development program is effective, it is necessary to record the present behavior of teachers. This can best be accomplished through observations and teacher surveys. Self report surveys are not enough. The staff development program can then be offered and time allowed for teachers to implement the program. Finally, observations and surveys of the teacher should be made and used as a post test. Change in teacher behavior can then be measured. If the program is school-wide, school-student scores can be examined from year to year to assess school and student effects. If the program was focused upon reducing absenteeism or tardiness, these differences can also be examined.

Summary

Teachers need help to effectively teach the students in their classrooms. The onus is upon school administrative staffs to select a training curriculum that is focused upon school goals. Further, the program should be comprehensive and ongoing with opportunities for teachers to receive feedback on their progress. It is our opinion that every program should be evaluated for effectiveness by observing teacher behavior before and after the intervention and then measuring teacher change. The impact upon student achievement and absence rate should then be evaluated. The bulwark of public education is being challenged and it is imperative that the teachers in our schools are prepared to meet that challenge.

REFERENCE NOTES

1. An evaluation of Teacher Corps is being conducted by SRI International, Menlo Park, California.

2. The Teacher Center budget for the existing year was 13 million. This money was used to fund 99 projects that have supported 140 centers. This money also covers grants to 42 states, District of Columbia and Guam for technical assistance to get across the Teacher Center concept.

3. Assertive Discipline is done by Dr. Lee Cantor, Fremont, California.

4. Classroom Management Training Program is conducted by Dr. Frederick Jones, Santa Cruz, California.

5. Increasing Teaching Effectiveness is a four part workshop series conducted by Dr. Madeline Hunter, Los Angeles, California.

6. Equal Opportunity in the Classroom is done by Dr. Sam Kerman, the Los Angeles County Department of Education. The program now goes by a new name. It is now called TESA, Teacher Expectations and Student Achievement.

REFERENCES

Evertson, C., Anderson, L., and Brophy, J. The Texas Junior High School Study: Final report of process-outcome relationships. University of Texas, Austin, R and D Report No. 4061, 1978.

Glass, G.V and Smith, M.L. Integrating studies that have quantitative independent variables. Paper presented at the 1979 Annual Meeting of the American Educational Research Association, San Francisco, California.

Good, T.L. The Missouri mathematics effectiveness project. School of Education, University of Missouri at Columbia, 1978.

Harnischfeger, A. and Wiley, D.E. Achievement test score decline: Do we need to worry? Chicago: ML Group for Policy Studies in Education, CEMREL, Inc., 1975.

Hedges, L.V., Gage, N.L., and Oklen, I. Meta-analysis of research on teaching. Paper presented at the 1978 Annual Meeting of the American Educational Research Association.

Saretsky, G. The strange case of Peter Doe. Phi Delta Kappan, May, 1973.

ATTACHMENT A

Description of Workshops

DESCRIPTION OF WORKSHOPS

Workshop 1 provides each teacher with a profile of his or her observed behavior (see Figure 1). The observation variables are listed in the left column. These are variables used in the study of Teaching Basic Reading Skills in Secondary Schools (Stallings, Needels and Stayrook, 1979). They have considerable face validity which makes the findings understandable to teachers. The fact that the findings were generated from classes similar to the ones in which the teachers were working lends credibility to the research. The variables used in the study are very specific and translating them into recommendations for teachers is not a difficult task. Each teacher receives his/her own set of recommendations for behavior change based upon three days of observation in a class of his/her choice. For example, we observed Sam Jones' period No. 3 prior to a series of inservice workshops. He received the behavior profile shown in Figure 1. The X indicates Sam's pre-training observation. The line down the middle is the mean for approximately 100 classes. Sam Jones was spending 46% of the classtime in management tasks (see pretest score for the first variable). This indicates that Sam was spending approximately one half of the class time not being involved with students; e.g., grading papers or keeping records. The mean for all teachers on this variable was 28%. After interpreting the study findings to Sam we made the recommendations shown in the left column. Our recommendation was to provide more instruction, more interaction, more feedback and do less paper grading and record keeping during class time.

More and less are defined in terms of percent of time spent in specific activities or in terms of frequencies of interactions. These recommendations

are guided by the level of student achievement. To succeed, lower achieving students require more auditory input and more oral expression than do higher achieving students. Teachers with students achieving below the fourth grade level are encouraged to provide oral reading approximately 20% of the time and oral instruction approximately 16% of the time. Teachers with students achieving from the fourth to the sixth grade level would not be encouraged to do as much oral reading but the amount of instruction should be about the same.

The remaining workshops in the series provide the assistance teachers need to carry out the recommendations.

In Workshop 2 the achievement level of the students in the class chosen for study is used to determine more exactly how reading should be approached. Methods to develop vocabulary and word concepts are described for each achievement group. Science, math and social studies teachers are given practical suggestions of how to help low achieving students develop a vocabulary to understand the key concepts of the course content. Recommendations for assessing student reading ability are provided. Some schools have very little easily accessed information for secondary students.

Workshop 3 focuses upon making good use of the total class period. Efficient means of making assignments and making clear expectations for quality and quantity of work are discussed. If classrooms have students of different achievement levels, teachers are guided to teach two or three groups to accommodate these differences. Lesson plans for several groups or models of group instruction are provided and teachers are guided to plan two or three activities for each group rather than just reading silently or doing workbooks all period.

Workshop 4 Because so many behavior variables were found to be negatively correlated with reading achievement, this workshop provides specific recommendations for behavior management. Each teacher receives a packet to

read before the session. During the session, the leader asks the teachers what was the most difficult behavior problem they had to handle the past week. In each of the prior sessions, the teachers have eventually mentioned the same problems: tardiness, absenteeism, arguments, shouting out demeaning remarks, and physical fights. The leaders ask how each teacher handled such situations. Some of these incidents are role played. Ways of handling such situations are suggested by the teachers and the trainers. Teachers then formulate recommendations based on the research findings and group suggestions. Techniques for motivating students toward good behavior and achievement are also discussed in the fourth session.

Workshop 5 provides instruction and practice in a direct method of providing instruction, questioning and feedback. Teachers are encouraged to provide some verbal instruction and ask students (by name--not by volunteers) to respond. If the response is correct the teachers provide some praise or acknowledgement feedback to the student that the answer is correct. This needs to be specific and clear. If the response is incorrect the teachers are trained to provide some form of positive corrective feedback. Such feedback might be to probe by asking the question differently or to provide some more information and re-ask the question.

Workshops 6 and 7 are conducted after observations at the end of each semester to see whether recommendations from the earlier workshops were followed. New profiles are prepared for each teacher in the form of transparencies so that the second and third profiles can be laid over the first profile to examine changes in teacher behavior. Feedback based on these profiles of teacher behavior is given to each teacher individually. Recommendations for continued behavior change are made.

TEACHER NAME: SAM JONES

LAKEWOOD HIGH SCHOOL

WASHINGTON UNIFIED SCHOOL DISTRICT

STANDARD DEVIATIONS FROM THE MEAN

Mean for All Classes

Less Frequent ←—— ——→ More Frequent

Snapshot Variables	Recommend Doing it:	< 2 S.D.	1 S.D.	0	1 S.D.	2 S.D. >	All Classes	Sam's Class Pre	Sam's Class Post	Correct Implementation
Teacher class manage/no students	Less			0 ←		X	15.	46.	07.	✓
Total silent reading	Less			0 ←	X		08.	09.	05.	✓
Total reading aloud	More			X	→	0	09.	06.	29.	✓
Total making assignments	OK		0 ←	X			06.	04.	00.	✓
Total instruction	More			0←X			10.	18.	13.	
Total discussion	More				X →	0	02.	04.	18.	✓
Total practice drill	More			X0			01.	00.	00.	
Total written assignments	OK			X→0			27.	17.	21.	✓
Total test taking	More			X0			02.	00.	00.	
Total social interaction	Less				0 ←	X	04.	15.	07.	✓
Total student uninvolved	Less		0 ←			X	05.	15.	01.	✓
Total discipline	OK			X0			00.3	00.	00.	✓
Interaction Variables										
Teacher to individual student	More	X	→			0	89.	48.	113.	
Teacher to groups	More		X	→		0	13.	01.	38.	✓
Teacher direct question, reading	More			0 ←		X	44.	137	37.	
Student response, reading	More		X	→		0	41.	23.	50.	✓
Teacher praise, support	More		X	→		0	42.	19.	43.	✓
Teacher corrective feedback	More				X →	0	19.	08.	34.	✓
All interactions/reading	More				X →	0	13.	19.	53.	✓
All interactions/behavior	OK			X	→	0	208.	230.	304.	✓
All interactions/positive	More		X	→		0	06.	01.	11.	✓
All interactions/negative	OK			X0			04.	00.	04.	
Student comments, assignment	OK		X→0				00.	00.	00.	✓
All interactions/class assignment	Less		0 ←			X	09.	01.	33.!	✓
Teacher manage class, no student	Less			0 ←		X	69.	144.	17.	✓
							33.	73.	05.	✓

X = Pre-Training Observation
0 = Post-Training Observation
—→ = Direction of change
✓ = Correctly Implemented

Figure 1 PROFILE OF SAM JONES' PRE- AND POST-TRAINING OBSERVATIONS